



ES Policy Assurance

V0.1 - December 2020





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HESAS EMS Standards Document

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Message from the chairman

It is vividly evident that the world witnessed the worst public health and economic crisis due to COVID-19 pandemic. This inevitably mobilized the international community to act seriously and swiftly. However, the mortalities and morbidities induced by healthcare-acquired infections (HAI) are equally fatal, but the international community did not act similarly. Consequently, we are continuously and chronically suffering from HAI.

The current intervention for HAI is merely based on passively-set standards and enforcing these standards via regulatory agencies such as the centre for disease control and prevention (CDC), joint commission international (JCI), ministries of health, and other regulatory agencies. To efficiently address HAI, we inevitably need to mobilize the international community because HAI traverses a multitude of epistemological dimensions, requiring multidisciplinary tacit knowledge, and mandates active international collaboration. Besides, we believe that we can efficiently traverse deeply into the root-causes and solution landscapes by automating the entire healthcare environmental services and infection control within healthcare institutions using the latest advancements in computational epistemology, computational infection control models, computational epidemiological models, artificial intelligence, machine learning, distributed ledger technology, collective intelligence, cognitive technologies, internet of things, ubiquitous technologies, intelligent micro-measurement frameworks, artificial life, evidence-based program implementation, patient-centric care, strategy anchored execution, and symbiotic healthcare ecosystem services. Consequently, we developed these open standards that were tailored from diverse international standards to promote the automation of healthcare environmental services and infection control processes and best practices.

The Healthcare Environmental Services Operational Map (HESOM) and other standards were developed to efficiently leverage multidisciplinary experts and practitioners to contribute towards the eradication of HAI-induced mortalities and morbidities. Using ReXcels research and innovation environment, we cultivate collective intelligence by bringing together these multidisciplinary experts to iteratively develop these standards and adaptively support the innovation of computational technology that automates the execution and enforcement of these standards. As such, we cordially invite you to use these documents and participate actively in the further development of these standards to significantly reduce HAI-induced mortalities, morbidities, and their enormous negative economic externalities.

Hamid Adem

Interim Chairman, and Chief R&D Officer

Change Control

Change Control

Version:	Date:	Changes:

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Purpose



1 Purpose

1. PURPOSE

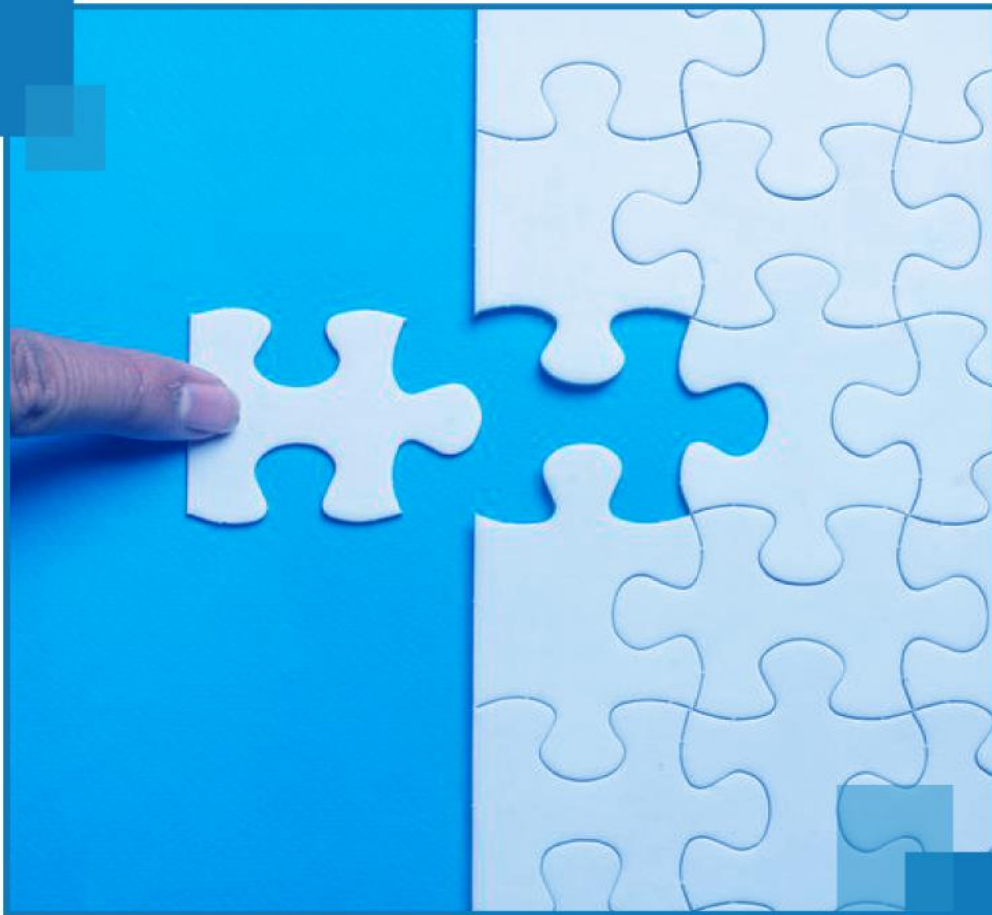
The purpose of this document is to establish ES Policy Assurance Management process for the organization's environmental Services department such that ES policy performance is well tracked monitored and reported.

This process is based on international well acclaimed standards like:

- *NHS- National Health Services Standard*
- *OSHA- Occupational Safety and Health Administration standard*
- *CDC- Centers for Disease Control and Prevention standard*
- *Lean six sigma- Quality Standard*
- *JCI- Journal of Clinical Investigation standard*
- *JCAHO- Joint Commission on Accreditation of Healthcare Organizations (JCAHO)*
- *EPA- US Environmental Protection Agency*
- *HCAHPS - Hospital Consumer Assessment of Healthcare Providers and Systems*
- *HIPA- Health Information Privacy Act standard.*

*P.S: This process is a derivation from **ESM (Environmental Service Map)**, which is a holistic and a comprehensive model for Environmental Services Management.*

Structure of the Document



2. STRUCTURE OF THE DOCUMENT

The ES Policy Assurance Management process document comprises the following chapters:

Chapter-3: Scope: This chapter describes the scope of the document and the Materials Performance Management.

Chapter-4: General Assumptions: This chapter describes the underlined assumptions made for both the document and ES Policy Assurance Management process.

Chapter-5: ES Policy Assurance Management Framework: This chapter exhibits the interaction of ES Policy Assurance Management process with other related processes.

Chapter-6: ES Policy Assurance Management Process: In this chapter ES Policy Assurance Management process and sub processes (if any) will be depicted and specified using rigorous BPMN and process specification templates.

Chapter-7: References: This chapter serves as a prime reference to ES Policy Assurance Management process and presents the details supporting it in tabular formats. The chapter describes relevant Business Rules, Risks, Quality Attributes, Data Quality Dimensions, Operation Policies, KPIs, CTQs, Abstract Time-scales and SLAs terms specific to ES Policy Assurance Management process.

Scope



3 Scope

3. SCOPE

This process is applicable to ES Policy Architecture process of the environmental service department.

General Assumptions



4. GENERAL ASSUMPTIONS

Following are the general assumptions made for this process:

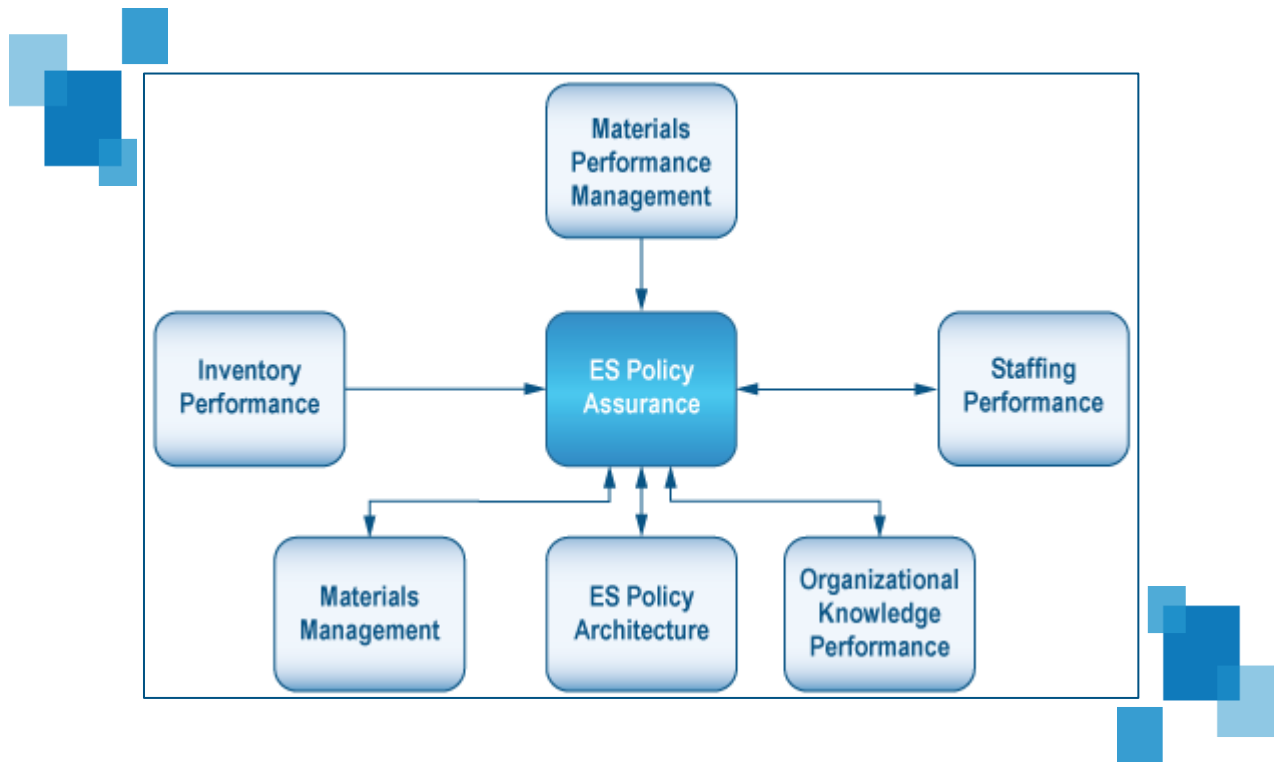
- There exists an automated capability to facilitate this process.
- The roles defined in all processes within this document can be attached to the existing position
- Any activity related assumptions are explicitly identified in related Process Specification table in Chapter 6.

ES Policy Assurance Management Framework



5.1 ES Policy Assurance Management Interactions

The following depiction shows the points of interaction of organization's environmental Services ES Policy Assurance Management process with other related processes. The arrows moving into ES Policy Assurance Management process signifies the inputs from the other processes to ES Policy Assurance Management Process, and the arrows moving out of the ES Policy Assurance Management process signify the inputs from ES Policy Assurance Management process to other related processes.



5.2 ES Policy Assurance Management Process Sequence

The ES Policy Assurance Management process comprises of following high level sequence of activities:

1. **Gather Information**
2. **Ensure Incorporation of waste control model**
3. **Ensure variance reduction**
4. **Ensure inclusion of continuous improvement practices**

5. Analyze performance
6. Initiate Policy Change
7. Track & Manage Change

Organization's environmental Services department's ES Policy Assurance Management process follows sequential steps mentioned below (**Section 5.2.1-5.2.3**). **Section 6.1** Process Model sheds more light on the flow of this process.

5.2.1 Gather Information

This involves gathering of relevant Policy performance inputs from various sources such as:

- **Internal Policy Reviews.** This comprises of changes arising out of internal review of the policy by the review committee.
- **Policy Audit results.** This comprises of the changes highlighted by the audit team.
- **Policy Modification request.** This comprises of the request risen by general staff and employees seeking changes to the policy for improvisation of their daily work operations.
- **Policy breaches.** This trigger changes in the policy to make them more strong and free from error.

5.2.2 Ensure incorporation of waste control

This step ensures that all ES policies involve minimization and control of wastes. Wastes can lead to variation which can lead to environmental services quality degradation. All the ES policies should focus on following types of waste minimization:

- **Minimizing Inventory Wastes.** Policies should be drafted to include unneeded products related to ES processes, which can lead to most costs in terms of space occupation and supplies expiration concerns. The best method to deal with this is to enforce **JIT inventory (Just in time inventory)**. Just-in-Time inventory system focus is having the right material, at the right time, at the right place, and in the exact amount.
- **Minimizing Motion Wastes.** Policies should be crafted in a manner to avoid reduction of unorganized movement (spaghetti motion) of staff, which can lead to budget over runs.
- **Minimizing Over production.** Policies should ensure avoidance of over working or over doing of things which results into over budgeting.
- **Minimizing Over processing.** This ensures that the policies should be crafted to avoid over complicating things that what is required e.g., doing extra accident handling drills than what is required.
- **Minimizing Transportation.** Unnecessary movement of equipment (round traffic) and staff would result into fatigue for the employees and also waste their precious time which can be utilized for some other productive work. Policies should be written in a way that they abide to minimization of transportation.

- **Minimizing Rework/ Correction.** This refers to doing the correct thing at the first time. The policies should be conceived in such a manner that it should avoid reworks in terms of recreating new policies, avoiding errors etc.
- **Minimizing Idle time.** Policies should be conceived in a manner that it takes into aims to minimize the time spend in waiting for critical input or resource for the process, without which the process can't proceed.

5.2.3 Reduce variation

Variations can affect almost every key performance measure and key dimensions such as efficiency, effectiveness, safety, satisfaction, performance of ES processes. This leads to inefficient processes and output. Typically variation can be classified into two types:

- **Identification of variation.**

This comprises of following:

- **Common Cause.** Common-cause variation appears as random variation in all measures from healthcare processes.
- **Special Cause.** Special-cause variation appears as the effect of causes outside the core processes of the work.

Management can reduce this variation by ensuring inclusion of clauses that would control special-cause variation and as well as common cause for the respective process.

All the policies should be focused on six sigma quality program and include means and methods to support the following phases of six sigma

- **Define.**

This comprises of establishing and defining target to achieve. For example, reduction in health incident cost by 25%.

- **Measure.**

This refers to the means and methods for collection of data and measuring techniques. This involves following:

- Identification of parameters.
- Data collection.
- Sampling techniques.

Policies can lay down instruction to contribute to data collection such as ensuring that logs are well stored and preserved.

- **Analyze Phase**

In the Analyze phase, information gathered in the Measure phase, is analyzed to pinpoint the root cause of variation, and identify improvement opportunities where non-value-add tasks can be removed.

- **Improve Phase.**

The Improve phase is when findings are incorporated into the policies and policies are streamlined and variations removed.

- **Control Phase.**

This involves implementing monitoring and sustaining procedures to facilitate over all improvisation.

5.2.4 Ensure Inclusion of Continuous improvement practice

Policies should consist of a wide array of managerial and organizational activities designed to streamline production processes, to remove waste and unpredictability, and to achieve previously unprecedented levels of performance.

Policies should incorporate following continuous improvement practices, for below mentioned continuous improvement domain.

Continuous Improvement Domains	Improvement Areas	Continuous Improvement Practices
Management	<ul style="list-style-type: none"> • Leadership • Mission and shared vision • Targets • Resources • Favourable changes in organisation 	<ul style="list-style-type: none"> • Set targets based on realistic expectations towards practice development and long term policy of the professional organisation • Make plans on improvement • Establish priorities towards subjects that particularly need improvement • Designate a staff as the quality coordinator • Hold quality meetings with all staff at regular intervals (for example, once a month) • Establish a quality board in practice • Integrate the activities in daily work
Record keeping	<ul style="list-style-type: none"> • Performance measures • Analysis of the organisation • Satisfaction 	<ul style="list-style-type: none"> • Collect data on specific subjects (according to priorities set or projects run and including patient satisfaction), if possible form electronic medical files (other sources include insurers, laboratories, pharmacists, appraisals, etc)

		<ul style="list-style-type: none"> • Make annual / monthly/ quarterly reports on outcomes of care • Make annual reports on improvement activities
Systematic approach	<ul style="list-style-type: none"> • Planned activities • Use of the quality cycle • Use of specific tools and techniques • Learn from experience 	<ul style="list-style-type: none"> • Run small improvement projects on prioritised issues (management of chronic disease, preventive activities, accessibility, workload) • Use tools and techniques that are simple to use and not time consuming (brainstorming, analysis of strengths and weaknesses, flow charts, cause and effect diagrams, etc) • Aim at changes in which existing processes are adapted or re-engineered (and build on experience) (ideas to improve processes can come from peer review, continuing medical education, guidelines, publications, etc)
Collaboration	<ul style="list-style-type: none"> • Everyone involved • Positive attitude towards continuous • quality improvement • Team building • Participation 	<ul style="list-style-type: none"> • Involve everyone in quality improvement activities (everyone is aware of tasks and responsibilities) • Build teams for systematic improvement activities • Involve patients (and other external customers) in improvement activities

5.2.5 Analyze performance

This process is responsible for identifying changes to the policy and evaluating the impact of these changes:

- **Impact on Process quality.** This identified the level of impact the policy change would have on the relevant process.
- **Impact on SLA.** This identifies the level of impact that the policy change would have on the overall SLA.
- **Impact on service quality.** This identifies the level of impact that the policy change would have on the service quality.
- **Impact on Business.** This identifies the level of impact that the policy change would have on the business of the environmental services.

After analysing if the change is found to be positive a Policy Change report is raised.

5.2.6 Initiate Policy Change

This process is responsible for creating policy change request. This process establishes a change request comprising of:

- Report id,
- Change description
- Effected Policy,
- Business impact,
- Time and date of report,
- Current status,
- Closure time and date.

5.2.7 Track and Manage Change

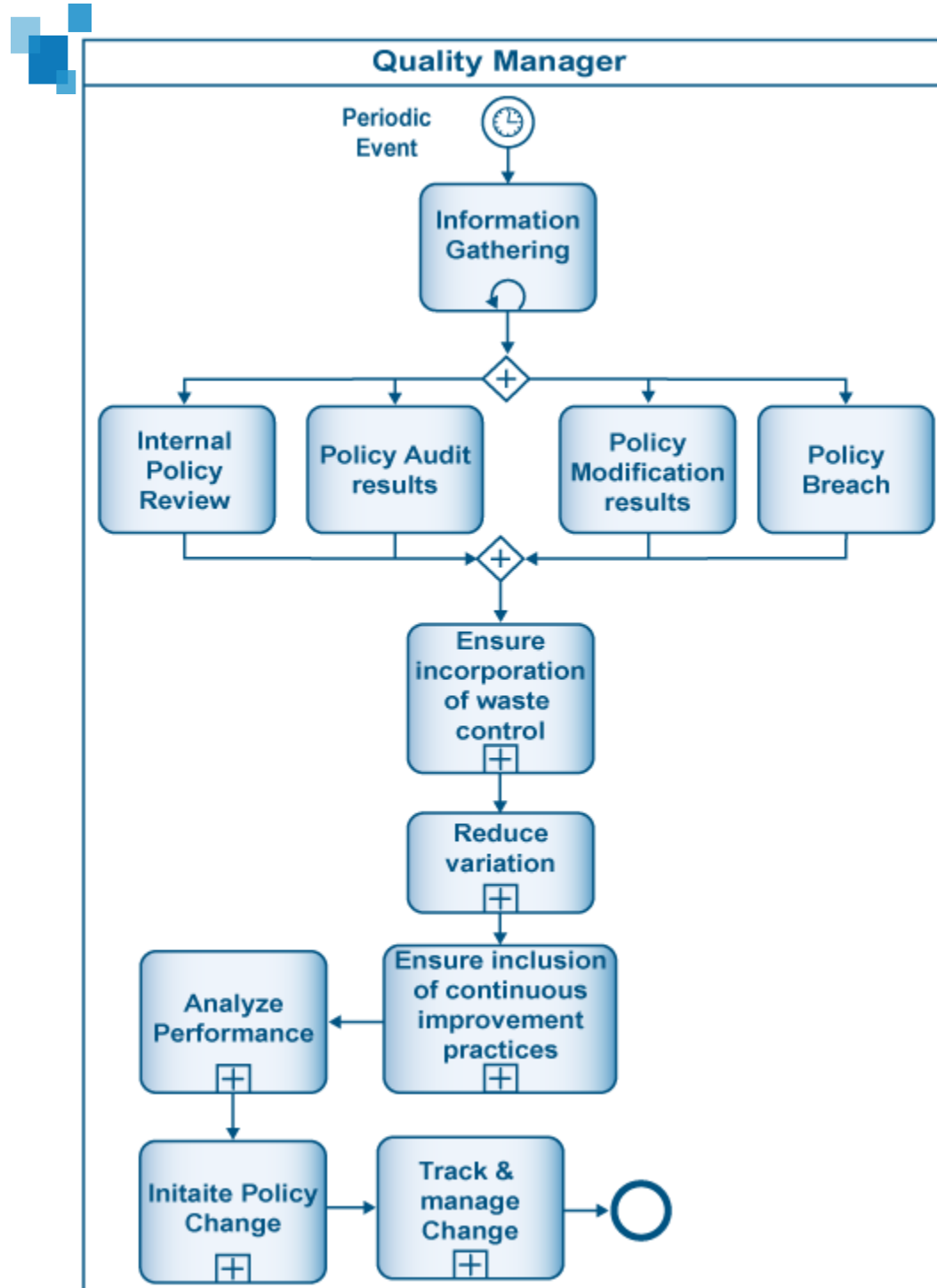
This process ensures that:

- The change requested is managed properly. This process is responsible to manage interactions with the Policy Architect on the resolution progress and update the change request on the current status.
- The change request is closed once the problem has been resolved.
- Notification and management reports are provided to the top management on the overall change.

ES Policy Assurance Management Process



6.1 ES Policy Assurance Management- Process



6.2 ES Policy Assurance Management – Specification

Specification	Description
Summary/Purpose	The purpose of this process is to establish ES Policy Assurance Management process.
Scope	This is a level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> Lean six sigma- Quality Standard
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, ES Policy Architecture, Organizational knowledge Performance.
Related Business Driver	ES Policy Assurance Improvisation
Related Operational Policies	OP-001, OP-002, OP-003, OP-004, OP-005 (Ref. 7.5)
Assumptions	There exists a capability at organization's environmental Services department to monitor policy performance
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.

6

ES Policy Assurance Management Process

MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimensions	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	<ul style="list-style-type: none"> Period event 						
Basic Course of Event	<p>ES Policy Assurance Management</p> <ol style="list-style-type: none"> Quality Manager gathers information via internal policy review, policy audit results, policy modification results, policy breaches. Quality Manager ensures that policies incorporate waste control methods Quality Manager ensure that the policies includes clauses to reduces variations Quality manager ensures that all the policies incorporate continuous improvement practices Quality Manager analyzes performance regularly Quality Manager initiates Policy change request. Quality Manager tracks and manages change End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, ES Policy Architecture, Organizational knowledge Performance.						
Preconditions	Policy is implemented at organizational level.						

Post -conditions	Policy assurance process is established.
Related Business Rules	BR-001, BR-002, BR-003, BR-004, BR-005, BR-006 (Ref 7.1)
Related Risks	RR-001, RR-002, RR-003, RR-004, RR-005, RR-006(Ref. 7.2)
Related Quality Attributes	Service Reliability, Availability, Usability, Normal Usability Operations, Confidentiality, Authenticity, Data Integrity, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Auditability, (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Believability, Objectivity, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	PCI, PCR, PIR, PWMR, PVR, PITR (Ref 7.6)
Related CTQs	PCIV, PCRIV, PIRV MOM, PWOM, CTQ, IOM, TOM, WRM, DRM, PWMRV, PVRV, PITRV (Ref 7.7)
Actors/Agents	Quality Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance, operational legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1

6

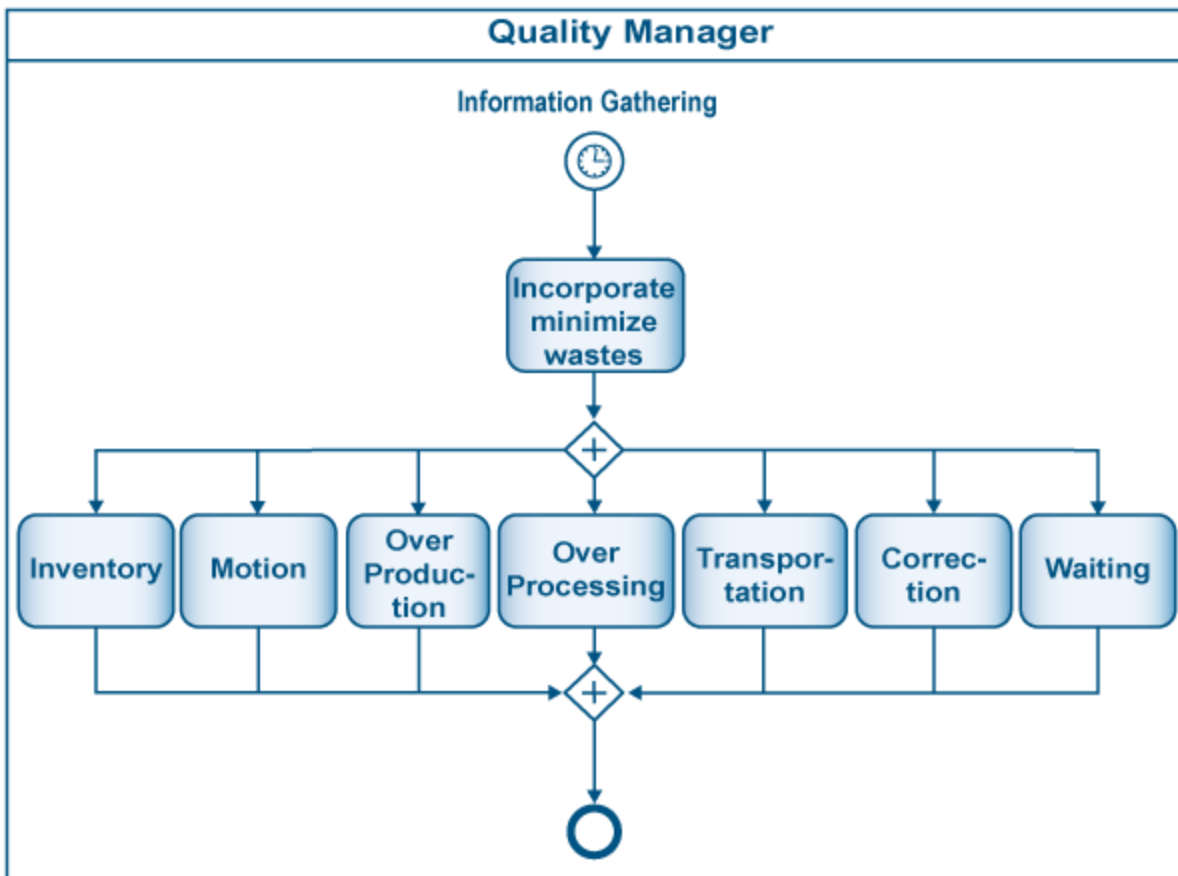
ES Policy Assurance Management Process

Process Model	Section 6.1
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.3 ES Policy Assurance Management – Roles & Responsibilities

Roles	Responsibilities
Quality Manager	<ul style="list-style-type: none">• Quality Manager gathers information via internal policy review, policy audit results, policy modification results, policy breaches.• Quality Manager analyzes performance regularly• Quality Manager initiates Policy change request.• Quality Manager tracks and manages change

6.4 Sub Process – Ensure incorporation of waste control



6.5 Sub Process – Ensure incorporation of waste control Specification

Specification	Description
Summary/Purpose	The purpose of this process is to incorporate waste control in ES policies.
Scope	This is a level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> Lean Six sigma
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, Organizational knowledge Performance.
Related Business Driver	Reduction of process wastes and improvement of quality.
Related Operational Policies	OP-003 (Ref 7.5)
Assumptions	Senior Management Support exists.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)

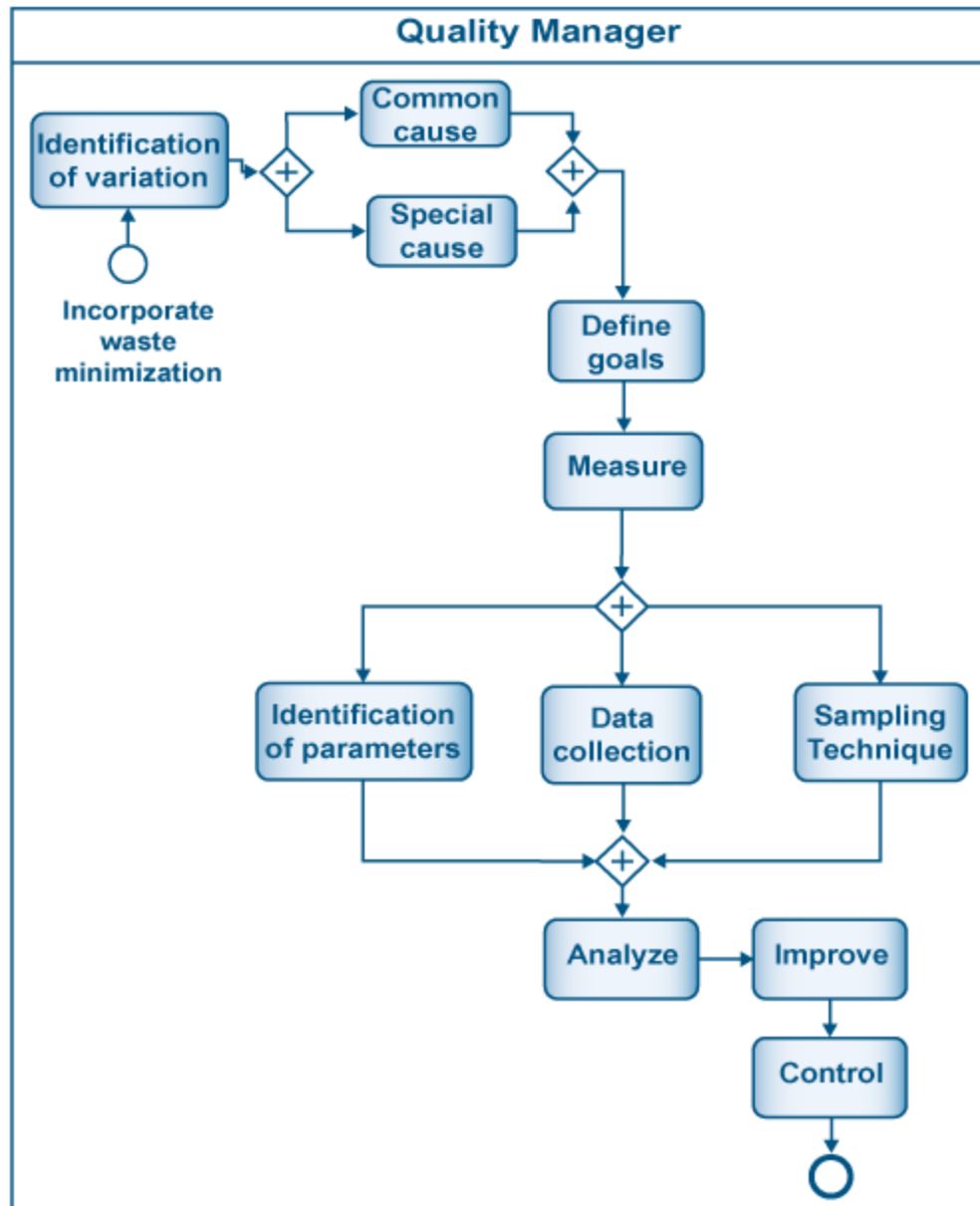
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	<ul style="list-style-type: none"> Information gathering 						
Basic Course of Event	<p>Waste Quality control model</p> <ol style="list-style-type: none"> Quality manager ensure that all the processes minimizes wastes (inventory, motion, over production, transportation, correction, idle time, knowledge, material, equipment) End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Reduce variation						
Preconditions	There exists a capability at environmental Services department to monitor the performance of this process.						
Post -conditions	Waste minimization is incorporated in policies						
Related Business Rules	BR-004(Ref 7.1)						
Related Risks	RR-004 (Ref. 7.2)						
Related Quality Attributes	Reliability, Usability, Data Integrity, Non-repudiation, Accountability, Performance, Auditability, Service reliability, confidentiality, authenticity, availability, non repudiation, testability (Ref 7.3)						

Related Data Quality Dimensions	Accuracy, Objectivity, Relevance, Completeness, timeliness, Understandability, interpretability, Reputation, Objectivity, Free-Of Error, Relevance, Completeness, Timeliness, Concise Representation (Ref 7.4)
Related Primary SLA Terms	TBD (Ref 7.9)
Related KPIs	PWMR (Ref 7.6)
Related CTQs	PWMRV (Ref 7.7)
Actors/Agents	Quality Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance or operational or legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1
Process Model	Section 6.4
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.6 Sub Process – Ensure incorporation of waste control Roles and responsibilities

Roles	Responsibilities
Quality Manager	Quality manager ensure that all the processes minimizes wastes (inventory, motion, over production, transportation, correction, idle time, knowledge, material, equipment)

6.7 Sub Process – Reduce variation



6.8 Sub Process – Reduce Variation Specifications

Specification	Description
Summary/Purpose	The purpose of this process is to incorporate six sigma approach for ES processes
Scope	This is a level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> Lean waste minimization Six sigma quality model
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, Organizational knowledge Performance.
Related Business Driver	Perfection and accuracy
Related Operational Policies	OP-004(Ref 7.5)
Assumptions	Senior Management Support exists.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.

6

ES Policy Assurance Management Process

MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	<ul style="list-style-type: none"> Incorporate minimization 						
Basic Course of Event	<p>Reduce variation</p> <ol style="list-style-type: none"> Quality manager identifies variation (common cause and specific cause) Quality manager defines policy quality goals Quality Manager ensures that the policy supports the measure phases (identification of parameters, data collection categories and sampling techniques) Quality Manager ensures that the policy supports analyzes phase of 6 sigma Quality Manager improves the overall policies Quality manager controls the quality of the process. End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Ensure inclusion of continuous improvement practices						
Preconditions	Management is supportive of quality program						
Post -conditions	Policies include Six sigma approach based variation control process.						

6

ES Policy Assurance Management Process

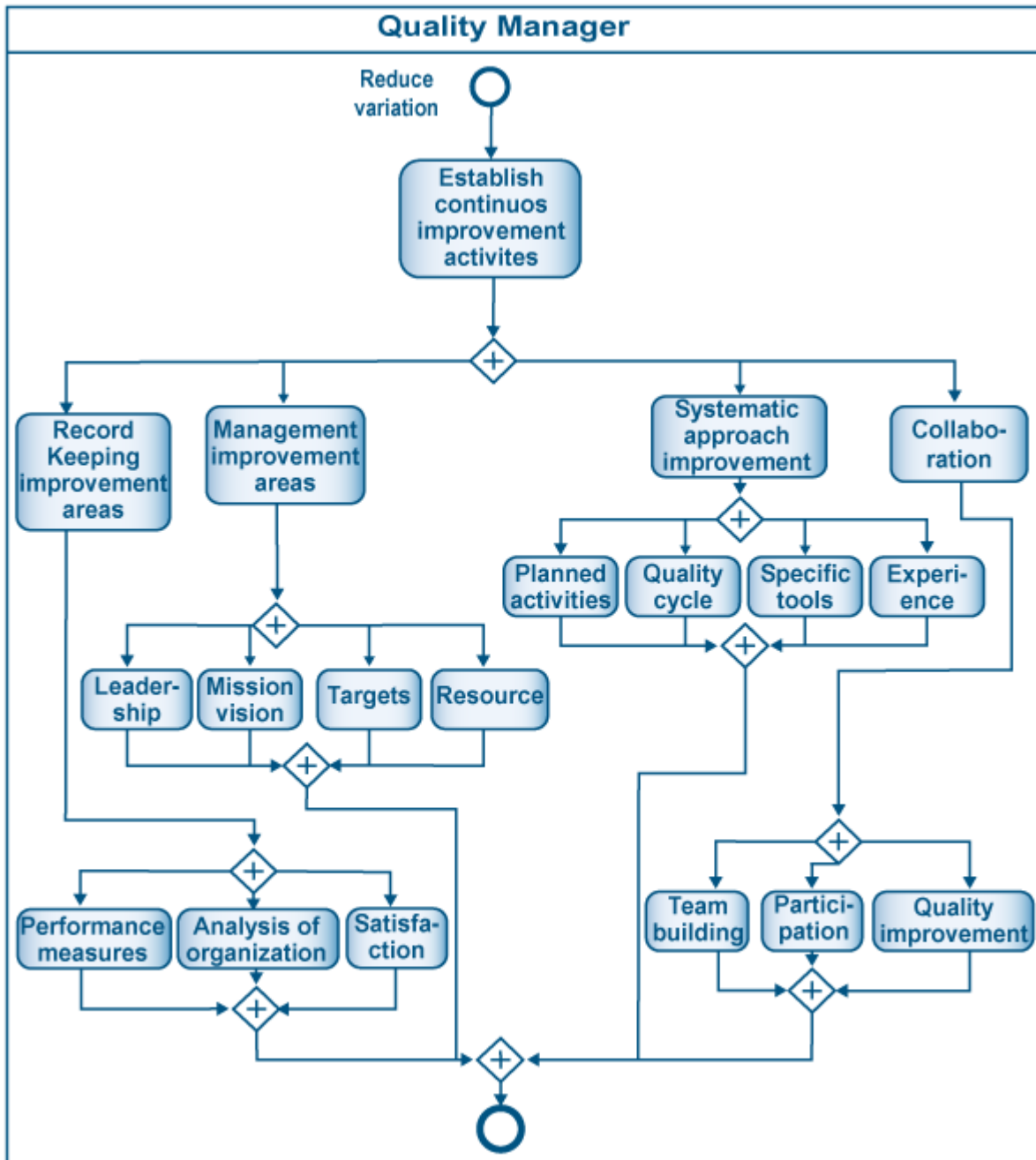
Related Business Rules	BR-005 (Ref 7.1)
Related Risks	RR-005(Ref. 7.2)
Related Quality Attributes	Reliability, Usability, Data Integrity, Non-repudiation, Accountability, Performance, Auditability, Service reliability, confidentiality, authenticity, availability, non repudiation, testability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Objectivity, Relevance, Completeness, timeliness, Understandability, interpretability, Reputation, Objectivity, Free-Of Error, Relevance, Completeness, Timeliness, Concise Representation (Ref 7.4)
Related Primary SLA Terms	TBD (Ref 7.9)
Related KPIs	PVR (Ref 7.6)
Related CTQs	PVRV (Ref 7.7)
Actors/Agents	Quality Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance or operational or legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1

Process Model	Section 6.7
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.9 Sub Process – Reduce Variation Roles and responsibilities

Roles	Responsibilities
Quality Manager	<ul style="list-style-type: none"> • Quality manager identifies variation (common cause and specific cause) • Quality manager defines policy quality goals • Quality Manager ensures that the policy supports the measure phases (identification of parameters, data collection categories and sampling techniques) • Quality Manager ensures that the policy supports analyzes phase of 6 sigma • Quality Manager improves the overall policies • Quality manager controls the quality of the process.

6.10 Sub Process – Ensure inclusion of continuous improvement practices



6.11 Sub Process – Ensure inclusion of continuous improvement practices Specifications

Specification	Description
Summary/Purpose	The purpose of this process is to incorporate continuous improvement practices in policies
Scope	This is a level 1 Process Specification.
Primary Reference	<ul style="list-style-type: none"> • Lean waste minimization • Six sigma quality model
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, Organizational knowledge Performance.
Related Business Driver	Continuous improvement
Related Operational Policies	OP-005(Ref 7.5)
Assumptions	Senior Management Support exists.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.

MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)						
EBC Procedures	None						
Timing Dimension	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	<ul style="list-style-type: none"> Reduce variation 						
Basic Course of Event	<p>Continuous Improvement process</p> <ol style="list-style-type: none"> Quality manager includes continuous improvement activities in policies for record keeping improvement areas (performance measures, analysis of organization, satisfaction), management improvement areas (leadership, mission & vision, targets, resource), systematic approach improvement (planned activities, quality cycle, specific tools, experience) and collaboration (team building, participation, quality improvement) End 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Analyze performance						
Preconditions	Management is supportive of quality program.						
Post -conditions	Policies incorporate continuous improvement practice.						
Related Business Rules	BR-006 (Ref 7.1)						

Related Risks	RR-006(Ref. 7.2)
Related Quality Attributes	Reliability, Usability, Data Integrity, Non-repudiation, Accountability, Performance, Auditability, Service reliability, confidentiality, authenticity, availability, non repudiation, testability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Objectivity, Relevance, Completeness, timeliness, Understandability, interpretability, Reputation, Objectivity, Free-Of Error, Relevance, Completeness, Timeliness, Concise Representation (Ref 7.4)
Related Primary SLA Terms	TBD (Ref 7.9)
Related KPIs	PITR (Ref 7.6)
Related CTQs	PITRV (Ref 7.7)
Actors/Agents	Quality Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance or operational or legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1
Process Model	Section 6.10

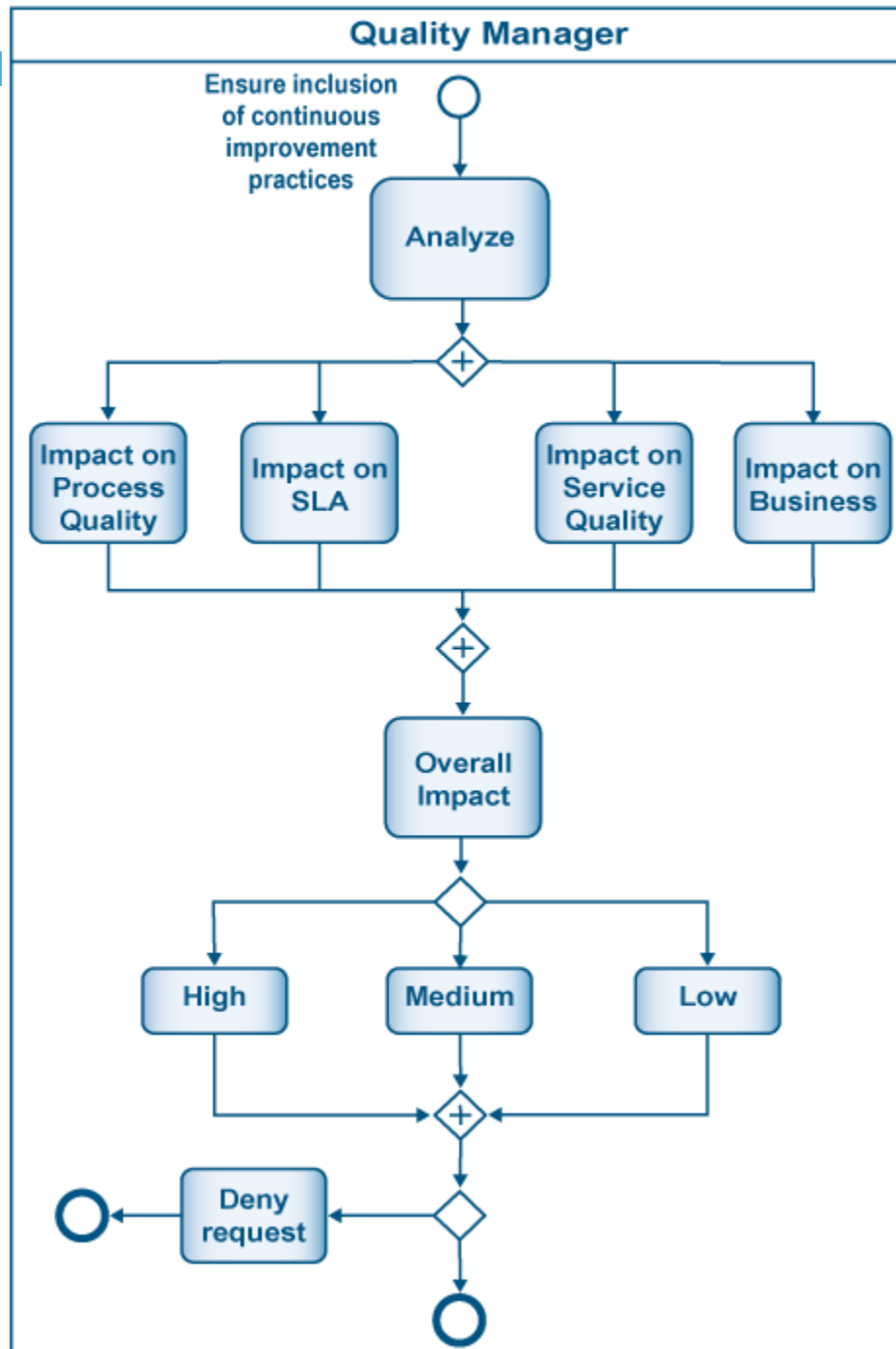
Other References

Appendix A: Business Process Modeling Notation Reference
Appendix B: Chain of Infection

6.12 Sub Process – Ensure inclusion of continuous improvement practices Roles and responsibilities

Roles	Responsibilities
Quality Manager	Quality manager includes continuous improvement activities in policies for record keeping improvement areas (performance measures, analysis of organization, satisfaction), management improvement areas (leadership, mission & vision, targets, resource), systematic approach improvement (planned activities, quality cycle, specific tools, experience) and collaboration (team building, participation, quality improvement)

6.13 Sub Process – Analyze Performance



6.14 Sub Process – Analyze Performance Specification

Specification	Description
Summary/Purpose	The purpose of this process is to Analyze performance of the policy.
Scope	This is a level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> Lean six sigma- Quality Standard
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, Organizational knowledge Performance.
Related Business Driver	Evaluation of policies
Related Operational Policies	OP-002 (Ref. 7.5)
Assumptions	Policies are well established and implemented at the organizational level.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors. (Ref 7.12)

6

ES Policy Assurance Management Process

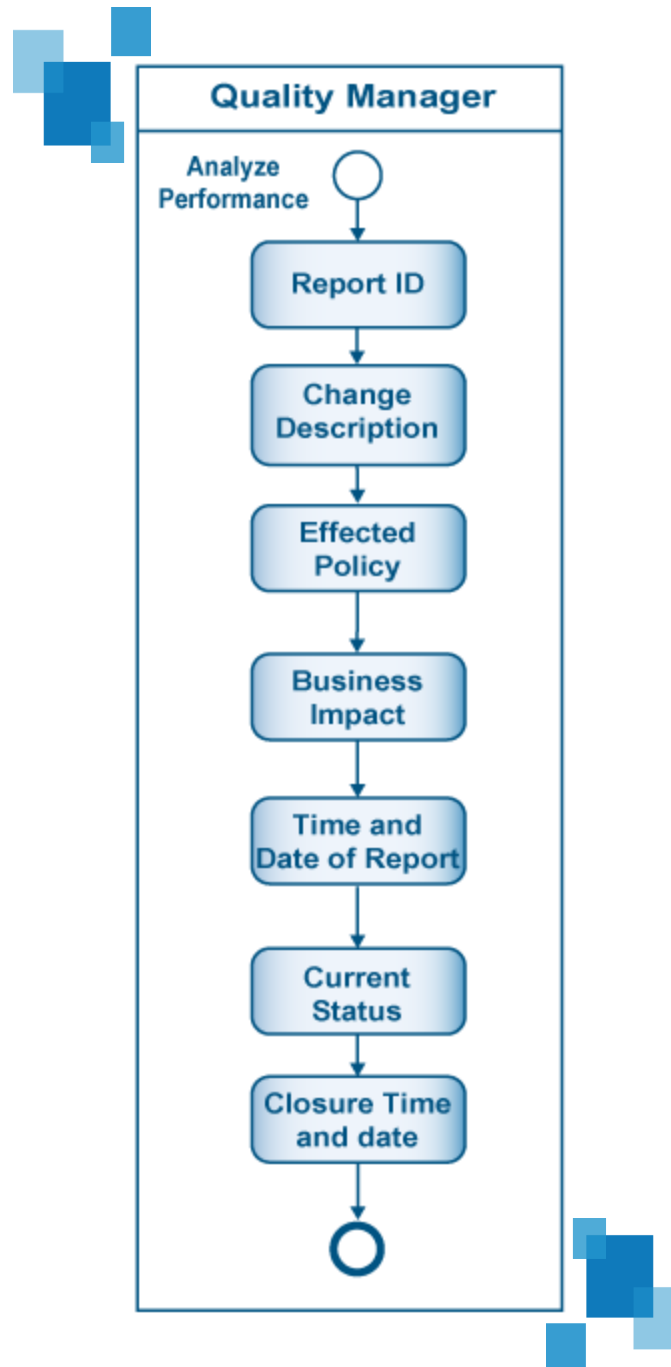
EBC Procedures	None						
Timing Dimensions	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	<ul style="list-style-type: none"> Ensure inclusion of continuous improvement practices 						
Basic Course of Event	<p>Analyze Performance</p> <ol style="list-style-type: none"> Quality Manager analyzes Materials (impact on process quality, impact on SLA, impact on service quality, impact on business) Quality Manager identifies overall impact (high, medium, low) Ends. 						
Alternative Path	<p>Request not justified.</p> <ol style="list-style-type: none"> Quality Manager denies request End 						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Initiate Policy change request						
Preconditions	Business impact rules are established.						
Post -conditions	Policy Performance gets analyzed.						
Related Business Rules	BR-002 (Ref 7.1)						
Related Risks	RR-003 (Ref 7.2)						
Related Quality Attributes	Service Reliability, Availability, Usability, Normal Usability Operations, Confidentiality, Authenticity, Data Integrity, Non-repudiation, Accountability, Security Integration, Performance, Scalability, Extensibility, Auditability (Ref 7.3)						

Related Data Quality Dimensions	Accuracy, Believability, Objectivity, Relevance, Completeness, Timeliness, Appropriate Amount, Understandability, Interpretability, (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	PCI(Ref 7.6)
Related CTQs	PCIV(Ref 7.7)
Actors/Agents	Quality Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance, operational legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1
Process Model	Section 6.13
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.15 Sub process – Analyze Performance - Roles & Responsibilities

Roles	Responsibilities
Quality Manager	<ul style="list-style-type: none">• Quality Manager analyzes Materials (impact on process quality, impact on SLA, impact on service quality, impact on business)• Quality Manager identifies overall impact (high, medium, low)

6.16 Sub process – Initiate Policy Change Request



6.17 Sub process – Initiate Policy Change Specifications

Specification	Description
Summary/Purpose	The purpose of this process is to create policy change result
Scope	This is a level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> Lean six sigma- Quality Standard
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, Organizational knowledge Performance.
Related Business Driver	Establishing the record for policy change.
Related Operational Policies	OP-001(Ref. 7.5)
Assumptions	Change has been properly evaluated.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors.

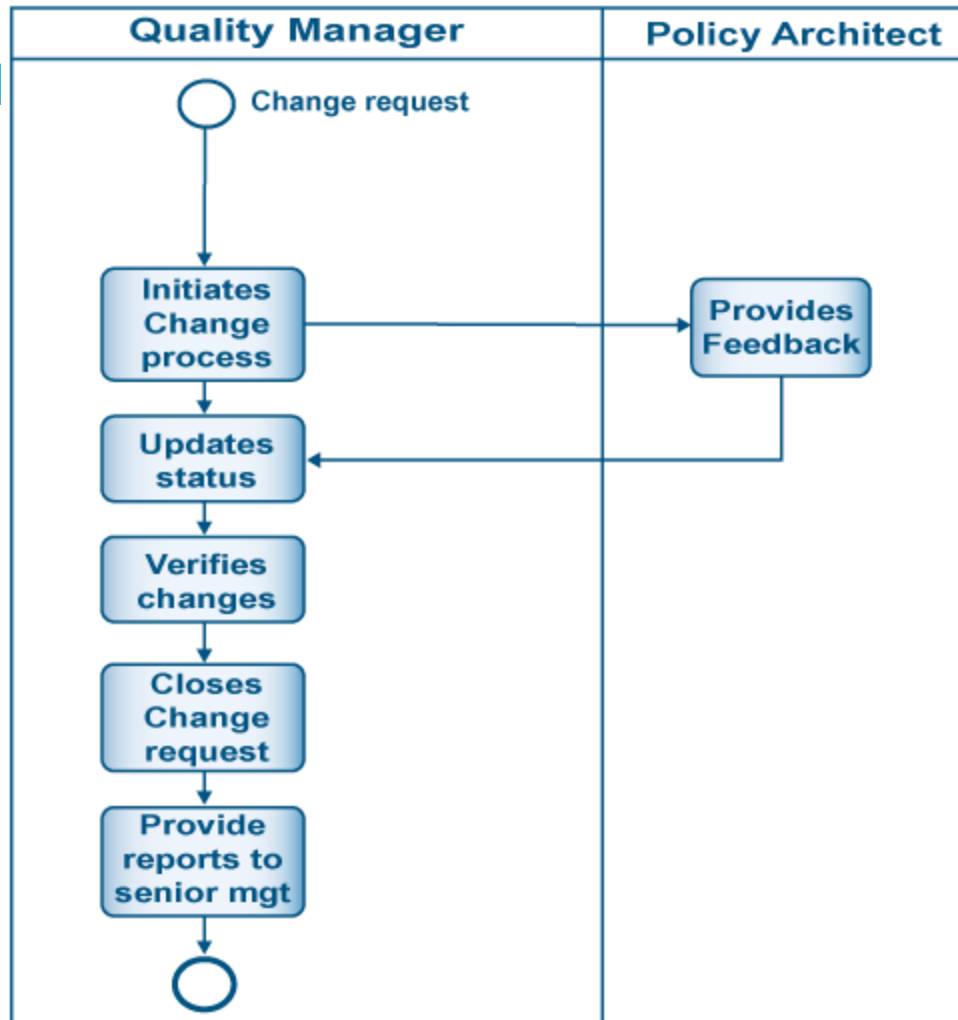
	(Ref 7.12)						
EBC Procedures	None						
Timing Dimensions	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	Analyze performance						
Basic Course of Event	<p>Initiate Policy change request</p> <ol style="list-style-type: none"> 1. Quality Manager establishes a report ID 2. Quality Manager identifies the change request 3. Quality Manager identifies effected Policy 4. Quality Manager identifies business impact. 5. Quality Manager identifies time and date of the report 6. Quality Manager updates the current status from time to time based on the progress 7. Quality Manager enters the closure time and date upon completion of the request 8. Ends. 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> 1. Keep paper track until system is up and running 2. Update the System and clear all logs. 3. End. 						
Extension points	Track and Manage Materials performance						
Preconditions	Senior support.						
Post -conditions	Policy Change report gets formulated.						
Related Business Rules	BR-003 (Ref 7.1)						

Related Risks	RR-001 (Ref. 7.2)
Related Quality Attributes	Reliability, Availability, Confidentiality, Authenticity, Data Integrity, Non-repudiation, Accountability, Performance, Auditability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Objectivity, Free-of-Error, Relevance, Completeness, Timeliness, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	PCR(Ref 7.6)
Related CTQs	PCRV (Ref 7.7)
Actors/Agents	Quality Manager.
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance, operational legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1
Process Model	Section 6.16
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.18 Sub Process – Initiate Policy Change - Roles & Responsibilities

Roles	Responsibilities
Quality Manager	Quality Manager establishes a report ID, establishes change details, , identifies effected policy, identifies time and date of the report, updates the current status from time to time based on the progress, enters the closure time and date upon completion

6.19 Sub Process – Track & Manage Change



6.20 Sub Process – Track & Manage Change Specification

Specification	Description
Summary/Purpose	The purpose of this process is to track and manage Materials performance.
Scope	This is a level 2 Process Specification.
Primary Reference	<ul style="list-style-type: none"> Lean six sigma- Quality Standard
Related ESM Practices	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, ES Policy Architecture, Organizational knowledge Performance.
Related Business Driver	Faster correction of identified performance degradation.
Related Operational Policies	OP-001 (Ref. 7.5)
Assumptions	Materials Manager is supportive in rectifying the performance degradation caused.
Voice of Customer	Hygiene, High and Consistent Quality of standards, Free of Infections, Timely Services, High Coordinating, Remove Waste, Excellent Ergonomic, Safety, Appearance, Excellent Worker Attitude. (Ref 7.10)
Customer Satisfaction Measure	Customer satisfaction index
COI Correlation	None
Raw Materials	None
Equipment & Accessories	Automated System for ES Policy Assurance Management.
MSD Management	Lifting/carrying, Disability, Force, Loaded motion, Physical ergonomics, Posture change, Excessive force, Scarceness, Noise, Concentration, Floor hazards, Clothing, Psychosocial factors.

	(Ref 7.12)						
EBC Procedures	None						
Timing Dimensions	<table border="1"> <thead> <tr> <th>Type</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Average</td> <td>30 min</td> </tr> <tr> <td>Std</td> <td>12 min</td> </tr> </tbody> </table>	Type	Normal	Average	30 min	Std	12 min
Type	Normal						
Average	30 min						
Std	12 min						
Trigger	<ul style="list-style-type: none"> Performance degradation report 						
Basic Course of Event	<p>Track and Manage Change</p> <ol style="list-style-type: none"> Quality Manager initiate Change Request Policy Architect provides feedback Quality Manager updates the status Quality Manager verifies changes Quality Manager closes change Quality Manager provides reports to senior management. Ends. 						
Alternative Path	None						
Exception Path	<p>System Down</p> <ol style="list-style-type: none"> Keep paper track until system is up and running Update the System and clear all logs. End. 						
Extension points	Staffing Performance, Inventory performance, Materials Management, Organizational Behavior Performance, Organizational knowledge Performance						
Preconditions	Communication channel is well established with Policy Architect.						
Post -conditions	Policy change happens.						
Related Business Rules	BR-001 (Ref 7.1)						
Related Risks	RR-002 (Ref. 7.2)						

Related Quality Attributes	Reliability, Availability, Confidentiality, Authenticity, Data Integrity, Non-repudiation, Accountability, Performance, Auditability (Ref 7.3)
Related Data Quality Dimensions	Accuracy, Free-of-Error, Completeness, Timeliness, Understandability, Interpretability, Concise Representation (Ref 7.4)
Related Primary SLA Terms	(Ref 7.9)
Related KPIs	PIR (Ref 7.6)
Related CTQs	ISDSRV (Ref 7.7)
Actors/Agents	Quality Manager
Delegation	<p><u>Delegation Rule -1: Agent Not Available</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation <p><u>Delegation Rule -2: Agent Overloaded</u></p> <ol style="list-style-type: none"> 1. Delegate the Issue to additional Agent with same Role 2. Update the Issue 3. Log the Delegation
Escalation	<p><u>Rule 1: Performance, operational legal Issues</u></p> <ol style="list-style-type: none"> 1. Escalate to environmental services department head. 2. Log Escalation
Process Map	Section 5.1
Process Model	Section 6.19
Other References	Appendix A: Business Process Modeling Notation Reference Appendix B: Chain of Infection

6.21 Sub Process – Track & Manage Change Roles and Responsibilities

Roles	Responsibilities
Quality Manager	Quality Manager initiate change, updates the status in performance degradation report, verifies changes done, and closes degradation report. Quality Manager provides reports to senior management.
Policy Architect	Materials manager provides feedback

Reference



This chapter serves as a prime reference to Chapter 6 and presents the details supporting Chapter 6 in tabular formats. This chapter consists of various variable values which would frequently evolve or change as organization's environmental Services department's ES Policy Assurance Management process matures or changes.

7.1 Business Rules

BR ID	Description	Context	Rule	Source
BR-001	For policy change would be handled by Policy Architect.	Business	TBD	TBD
BR-002	All impacts should be considered before considering a policy change.	Business	TBD	TBD
BR-003	All the policy changes should be reported	Business	TBD	TBD
BR-004	All wastes should be minimized.	Business	TBD	TBD
BR-005	Lean Six sigma would be use as the prime standard for variance minimization	Business	TBD	TBD
BR-006	All quality initiatives should be improvised.	Business	TBD	TBD

7.2 Risk

Risk ID	Description	Source	Severity Level	Status	Resolution
RR-001	All policy changes identified or requested are not recorded	NA	High	TBD	Effort should be undertaken to ensure all the changes requested are recorded.
RR-002	Policy changes identified are not properly followed up	NA	High	TBD	Senior management should ensure that all the identified policy

					changes are settled within a stipulated time frame.
RR-003	Not all policy impacts are monitored.	NA	Medium	TBD	All the policy related impacts data needs to be identified and considered.
RR-004	Policy Waste minimization measure are not effective	NA	High	TBD	Waste minimization KPI should be established are accurately measured.
RR-005	Staff do not follow the policy quality program	NA	High	TBD	Staff should be well trained and familiarized with the quality process and policies so that they would act as desired.
RR-006	The improvement practices are not in line with the policy goals	NA	High	TBD	The improvement practices should be aligned to the target objective via proper discussion so that it is acceptable to all.

7.3 Quality Attribute

QA ID	Description	Threshold
QA-001	Interoperability	TBD
QA-002	Reliability	TBD
QA-003	Service Reliability	TBD
QA-004	Availability	TBD
QA-005	Usability	TBD
QA-006	Normal Usability Operations	TBD

QA-007	Confidentiality	TBD
QA-008	Authenticity	TBD
QA-009	Data Integrity	TBD
QA-010	Availability	TBD
QA-011	Non-repudiation	TBD
QA-012	Accountability	TBD
QA-013	Security Integration	TBD
QA-014	Performance	TBD
QA-015	Scalability	TBD
QA-016	Extensibility	TBD
QA-017	Adaptability	TBD
QA-018	Testability	TBD
QA-019	Auditability	TBD
QA-020	Operability and Deployability	TBD

7.4 Data Quality Dimension

DQ ID	Description	Threshold
DQ-001	Accuracy	TBD
DQ-002	Believability	TBD

DQ-003	Reputation	TBD
DQ-004	Objectivity	TBD
DQ-005	Free-of-Error	TBD
DQ-006	Value Added	TBD
DQ-007	Relevance	TBD
DQ-008	Completeness	TBD
DQ-009	Timeliness	TBD
DQ-010	Appropriate Amount	TBD
DQ-011	Understandability	TBD
DQ-012	Interpretability	TBD
DQ-013	Concise Representation	TBD

7.5 Operation Policy

Policy ID	Description	Context	Importance (1-5)
OP-001	All the reported policy changes should be acted upon within 5 working days from the day of identification	TBD	TBD
OP-002	Business impact would be identified for process quality, SLA Service quality and Business.	TBD	TBD
OP-003	Policy should incorporate Waste minimization in following perspectives: inventory, motion, over production,	TBD	TBD

	over processing, transportation, correction, waiting		
OP-004	All staff which deal with the performance of this process would be fully trained six sigma trained	TBD	TBD
OP-005	Policy improvements should be monitored regularly	TBD	TBD

7.6 KPI

Name	Acronym	Description	Context	Importance	Soft Threshold	Hard Threshold
Policy change impact rate	PCI	The degree of impact in policy change	NA	TBD	TBD	TBD
Policy change request rate	PCR	The number of policy change request received per month	NA	TBD	TBD	TBD
Policy Implementation rate	PIR	Number of policies implemented after change approved.	NA	TBD	TBD	TBD
Policy Waste minimization rate	PWMR	Waste minimization practices per policy	NA	TBD	TBD	TBD
Policy Variation rate	PVR	percentage decrease in	NA	TBD	TBD	TBD

		variation due to policy				
Policy Improvement Target rate	ITR	Number of policy improvement targets met per month	NA	TBD	TBD	TBD

7.7 CTQ

Name	Acronym	Description	Context	Importance	Soft Threshold	Hard Threshold
Policy change impact rate variation	PCIV	Standard deviation of PCI	NA	TBD	TBD	TBD
Policy change request rate variation	PCRIV	Standard deviation of PCR	NA	TBD	TBD	TBD
Policy Implementation rate variation	PIRV	Standard deviation of PIR	NA	TBD	TBD	TBD
Motion Optimization Measure	MOM	Management of motion optimization measure	NA	TBD	TBD	TBD

Paper work Optimization Measure	PWOM	Management of Paper work Optimization Measure	NA	TBD	TBD	TBD
Correction reduction measure	CRM	Management of Correction reduction measure	NA	TBD	TBD	TBD
Materials Optimization Measure	IOM	Management of Materials Optimization Measure	NA	TBD	TBD	TBD
Transportation Optimization Measure	TOM	Management of Transportation Optimization Measure	NA	TBD	TBD	TBD
Waiting Reduction Measure	WRM	Management of Waiting reduction Measure	NA	TBD	TBD	TBD
Policy Waste minimization rate variation	WMRV	Standard deviation of PWMR	NA	TBD	TBD	TBD

7 Reference

Policy Variation rate variation	VRV	Standard deviation of PVR	NA	TBD	TBD	TBD
Policy Improvement Target rate variation	ITRV	Standard deviation of PITR	NA	TBD	TBD	TBD

7.8 Abstract Time – Scale

Name	Acronym	Description	Quantification
TBD	TBD	TBD	TBD

7.9 SLA Terms

SLA ID	Description	Context	KPI	CTQ
TBD	TBD	TBD	TBD	TBD

7.10 Voice of Customer

VOC	Customer	Description	Perceived Value
Hygiene	Doctors, Patients, Nurses, Housekeeping Supervisors, Housekeepers, Clerks, Visitors, Environmental	The environment should be attributing with great hygiene level.	<ul style="list-style-type: none"> • High quality healthcare services • Safe environment • Low infection rate

	Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker.		<ul style="list-style-type: none"> • Low risk
High and Consistent Quality of standards	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	High and Consistent Quality of standards.	<ul style="list-style-type: none"> • Reputation of organization or hospital • Professionalism • Trust • Positive psychological bias
Free of Infections	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	Infections free and healthy environment.	<ul style="list-style-type: none"> • Safe environment • Reputation of hospital or organization • Trust • Quick healing • Positive psychological bias • Low risk
Timely Services	Doctors, Patients, Nurses, Housekeeping Supervisors, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste	The response time for any request should be very short.	<ul style="list-style-type: none"> • Professionalism • Trust • Positive psychological bias • Reputation of hospital or organization • Safe environment

	management worker, Housekeepers		
High Coordinating	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	There should be high level of coordination between hospital employees and departments.	<ul style="list-style-type: none"> • Professionalism • Trust • Low risk • Excellent Ergonomic
Remove Waste	Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	Wastes should be either removed or minimized.	<ul style="list-style-type: none"> • Safe environment • Low infection rate • Low risk • Reputation of hospital or organization • Low cost • Timely response • High quality
Excellent Ergonomic	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The hospital environment and policy should comply with physical, organization and cognitive ergonomics.	<ul style="list-style-type: none"> • Professionalism • Trust • Job accuracy • Excellent communication • Low risk • Reputation of hospital or organization

Safety	Doctors, Patients, Nurses, Housekeeping Supervisors, Clerks, Visitors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	Hospital environment should comply with occupational health and safety procedures.	<ul style="list-style-type: none"> • Safe environment • Professionalism • Low risk
Appearance	Housekeeping Supervisors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The appearance of the workers, supervisors and manager should induce positive biases.	<ul style="list-style-type: none"> • Professionalism • Reputation of hospital or organization • Trust • Positive psychological bias
Excellent Worker Attitude	Housekeeping Supervisors, Environmental Services Management, Laundry worker, Transportation worker, Maintenance worker, Waste management worker, Housekeepers	The environment service employee should be free from negative attitudes.	<ul style="list-style-type: none"> • Professionalism • Reputation of hospital or organization • Trust • Positive psychological bias • Minimum disputes • Less employee turn over

7.11 Customer Context Matrix

Name of Customer	Acronym	Context of Customer	Coordination Process Area
Doctors	DOC	Direct	HIS Coordination

7 Reference

Patients	PAT	Direct	HIS Coordination
Nurses	NUR	Direct	HIS Coordination, Nurse Coordination
Housekeeping Supervisors	HKS	Direct	Quality Coordination, Nurse Coordination, infection control coordination
Clerks	CLR	Direct	HIS Coordination
Visitors	VIS	Indirect	HIS Coordination
Environmental Services Management	ESM	Direct	Nurse Coordination, infection control coordination
Other hospital workers	OHW	Indirect	Security coordination
Laundry worker	LDW	Direct	Nurse Coordination, HIS Coordination
Transportation worker	TRW	Direct	Quality Coordination, HIS Coordination
Maintenance worker	MAW	Direct	Quality Coordination, HIS Coordination
Waste management worker	WMW	Direct	Quality Coordination, HIS Coordination
Infection control professional	ICP	Indirect	Infection control coordination
Housekeepers	HK	Direct	HIS Coordination, Nurse Coordination

7.12 MSD Attributes

MSD Attribute	Description
Lifting/carrying	Large vertical movements, long carry distances.
Disability	Pose a risk to those with a health problem or a physical or learning disability.
Force	High initial forces to get the load moving.
Loaded motion	High forces to keep the load in motion.
Physical ergonomics	Constraints on body posture/positioning, confined spaces/narrow doorways.
Posture change	Strong force and awkward movement/posture. E.g. bent wrists.
Excessive force	Excessive force to grip raw materials, product or tools
Scarceness	Inadequate tools for repetitive use screwdrivers, pliers, hammers.
Noise	Noise which cause stress and muscle tension.
Concentration	Tasks require high levels of attention/concentration especially where the worker has little control over allocation of effort to the task.
Floor hazards	Remove slip and trip hazards through provision of appropriate floor surfaces and good keeping.
Clothing	Clothing/PPE may prevent sufficient movement for the task or reduce capability. E.g. to grip consider handling needs when selecting work wear/gloves.
Psychosocial factors	Adverse psychosocial factors can increase the potential for manual handling injuries. A workers psychosocial response to work and the workplace conditions can affect their health in general and MSDs in particular. The factors include the content, design, organization and management of the work



Glossary / Acronyms



GLOSSARY



Terminology	Description
Abstract Time Scale	Time Scale that will be quantified both during operations and continuous process improvement. These time identifiers are correlated with the soft thresholds that are dynamically specified during life span of the process.
BPMN	Business Process Modelling Notation Business Process Modelling Notation is the practice of documenting an organisation's key business processes in a graphical format.
Business Rules	Business Rules are intended to assert business structure or to control or influence the behaviour of the Business. Business rules describe the operations, definitions and constraints that apply to an organization
CTQ	Critical to Quality Critical To Quality (CTQ) is continuous measuring and monitoring tool agreed between the internal processes to achieve greater customer satisfaction.
COI	Chain of Infection
Data Quality Dimensions	The totality of features and characteristics of data that bears on their ability to satisfy a given purpose
EBC	Evidence Based Cleaning
ESM	Environmental Services Map
KPI	Key Performance Indicator A metric that is used to help manage a process, IT service or activity. Many metrics may be measured, but only the most important of these are defined as KPIs and used to actively manage and report on the process, IT service or activity. KPIs should be selected to ensure that efficiency, effectiveness, and cost effectiveness are all managed.
MSD	Macro skeleton disorder
Operational Policy	Rules defined to operate the process.

Quality Attributes	Quality attributes are non-functional requirements used to evaluate the performance of a process.
Risk	A possible event that could cause harm or loss, or affect the ability to achieve Objectives. A risk is measured by the probability of a threat, the vulnerability of the asset to that threat, and the impact it would have if it occurred.
SLA	Service Level Agreement An Agreement between an IT Service Provider and a Customer. The SLA describes the IT Service, documents Service Level Targets, and specifies the responsibilities of the IT Service Provider and the Customer
VOC	Voice of customer



Appendix A: Business Process Modeling Notation Reference



APPENDIX.
A









INTRODUCTION

Business Process Modelling (“BPM”) is the practice of documenting an organisation’s key business processes in a manner which:

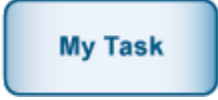


- Is highly graphical
- Focuses on business terminology rather than technical
- Allows all business steps/tasks to be included, not just those which involve a computer system

Mentioned below are the various core concepts of BPMN with the relevant definition and graphic notation.







PROCESS START

All processes have to start somehow, general notation for a process models commence with the START event, is a circle.	
One can use simply the <i>basic unmarked</i> start event as above, or one of the different types of start event, to provide more detail as described below.	
If a process starts when some sort of message arrives, mail, email, text. Following notation can be used	Message start 
If a process starts by virtue of the passage of time – e.g. 1st Jan review or 4 days after the purchase order is sent, following notation can be used	TIMER Start 
If the process starts when a rule/condition is met – e.g. when Incident Impact is more than 100,000.	RULE Start 
If a process starts when another process finishes. Following notation can be used	LINK Start 
If there is more than one ‘trigger’ for a process to start. Following notation can be used	MULTIPLE Start 



TASK AND SUB PROCESS

Task	Task is a lowest level activity in a process map. A task is used when the work is not broken down to a finer level of detail	
Sub Process	A Sub-process is a compound activity which can be broken down into finer details.	
Loops	Loops task or sub process continues to iterate until the loop condition is true.	

INTERMEDIATE EVENTS

Following notation can be used to display the intermediate event, similar to start and end events.						
	BASIC	MESSAGE	TIMER	RULE	LINK	MULTIPLE
						

PROCESS END

All processes have to end somehow, general notation for a process models end will be a circle with a solid line.	
One can use simply use the <i>basic</i> end event as above, or you can use one of the different types of end event, to provide more detail, as described below:	
If a process ends by something being sent via a message of some sort e.g., mail, email, document, following notation can be used.	MESSAGE End 

If the end of this process causes the start of another, following notation can be used.

LINK End





If more than one consequence of the process ending, following notation can be used.



MULTIPLE End



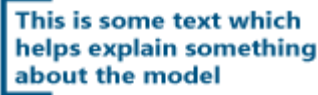


SWIMLANES

Pool	<p>A <i>Pool</i> represents a participant in a Process. It is also acts as a “swimlane” and a graphical container for partitioning a set of activities from other Pools</p>	
Lane	<p>A <i>Lane</i> is a sub-partition within a Pool and will extend the entire length of the Pool, either vertically or horizontally. Lanes are used to organize and categorize activities.</p>	

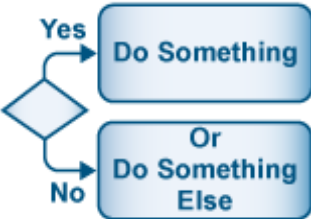
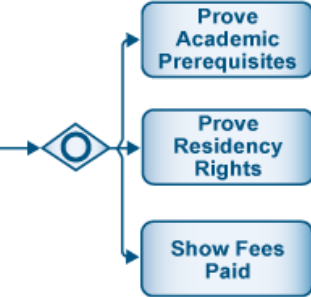
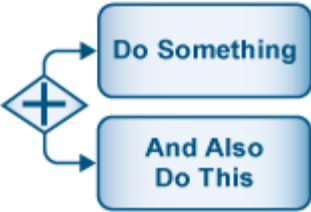
CONNECTORS

Sequence Flow	<p>A <i>Sequence Flow</i> is represented by a solid line with a solid arrowhead (see the figure to the right) and is used to show the order (the sequence) that activities will be performed in a Process.</p>	
Message Flow	<p>A <i>Message Flow</i> is represented by a dashed line with an open arrowhead (see the figure to the right) and is used to show the flow of messages between two separate Process Participants. In BPMN, two separate Pools in the Diagram will represent the two Participants.</p>	

ARTIFACTS

Annotation	The ANNOTATION shape is used to add comments to a process model. It consists of text in a square left bracket	
Data Object	A data object represents a piece of data which is required or produced by the process eg. Customer details, output.	
Group	A grouping is purely for documentation or explanatory purposes. It has no impact on the model. It consists of a rectangle with dashed lines and rounded corners, usually enclosing other objects.	

GATEWAYS

Exclusive	The values of the process are examined to determine which path to take	
Inclusive	Each branch will be evaluated and will not stop when one branch condition becomes true.	
Parallel	Provides a mechanism to synchronise parallel flow and to create parallel flow.	

Appendix B: Chain of Infection



APPENDIX.
B

10 Appendix B: Chain of Infection

In order to control or prevent infection it is essential to understand that transmission stages of a pathogen resulting in infection requires the six vital links (Refer to the table below).

Each link mentioned below must be present for infection or colonization to proceed, and breaking any of the links can prevent the infection.

The section below details out the six stages:

Stage	Link	Description
1	Infectious Agent	Any disease-causing microorganism (pathogen)
2	The Reservoir Host	The organism in which the infectious microbes reside
3	The Portal of Exit	Route of escape of the pathogen from the reservoir.
4	The Route of Transmission	Method by which the pathogen gets from the reservoir to the new host
5	The Portal of Entry	Route through which the pathogen enters its new host
6	The Susceptible Host	The organism that accepts the pathogen

Link 1: Infectious Agent

The causative agent for infection is any microorganism capable of producing disease. Microorganisms responsible for infectious diseases include bacteria, viruses, rickettsiae, fungi, and protozoa. Sometimes, microorganisms are part of patient's own body flora and can cause infection in the immunocompromised host. These infections are called endogenous infections. Infections which are acquired from external sources are called exogenous infections.

Link 2: Reservoir Host

The second link in the chain of infection is the reservoir, i.e. the environment or object in or on which a microorganism can survive and, in some cases, multiply. Inanimate objects, human beings, and animals can all serve as reservoirs, providing the essential requirements for a microorganism to survive at specific stages in its life cycle.

Infectious reservoirs abound in health care settings, and may include everything from patients, visitors, and staff members to furniture, medical equipment, medications, food, water, and blood.

10 Appendix B: Chain of Infection

Link 3: Portal of Exit

The portal of exit is the path by which an infectious agent leaves its reservoir. Usually, this portal is the site where the microorganism grows. Common portals of exit associated with human reservoirs include the respiratory, genitourinary, and gastrointestinal tracts, the skin and mucous membranes and the placenta (transmission from mother to fetus)

Link 4: Route of Transmission

The microorganism can be acquired by inhalation (through respiratory tract), ingestion (through gastrointestinal tract), inoculation (through accidental sharp injury or bites), contact (during sexual intercourse) and transplacental transmission (microbes may cross placenta from the mother to fetus). It is important to remember that some microorganisms use more than one transmission route to get from the reservoir to a new host.

Of the six links in the chain of infection, the mode of transmission is the easiest link to break and is key to control of cross-infection in hospitals.

Link 5: The Portal of Entry

The portal of entry is the path by which an infectious agent invades a susceptible host. Usually, this path is the same as the portal of exit. For example, the portal of entry for tuberculosis and diphtheria is through the respiratory tract, hepatitis B and Human Immunodeficiency Virus enter through the bloodstream or body fluids and Salmonella enters through the gastrointestinal tract. In addition, each invasive device, e.g. intravenous line, creates an additional portal of entry into a patient's body thus increasing the chance of developing an infection.

Link 6: The Susceptible host

The final link in the chain of infection is the susceptible host. The human body has many defense mechanisms for resisting the entry and multiplication of pathogens. When these mechanisms function normally, infection does not occur. However, in immunocompromised patients, where the body defenses are weakened, infectious agents are more likely to invade the body and cause an infectious disease. In addition, the very young and the very old are at higher risk for infection because in the very young the immune system does not fully develop until about age 6 months, while old age is associated with declining immune system function as well as with chronic diseases that weaken host defenses.